

Title (en)

METHOD AND APPARATUS FOR GUEST RETURN ADDRESS STACK EMULATION SUPPORTING SPECULATION

Title (de)

VERFAHREN UND VORRICHTUNG FÜR EINE GASTADRESSENSTAPELEMULATION MIT UNTERSTÜTZUNG EINER SPEKULATION

Title (fr)

PROCÉDÉ ET APPAREIL POUR UNE ÉMULATION DE PILE D'ADRESSES DE RETOUR D'HÔTE PRENANT EN CHARGE UNE SPÉCULATION

Publication

EP 2972798 A4 20170419 (EN)

Application

EP 14770972 A 20140313

Priority

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- US 2014026252 W 20140313

Abstract (en)

[origin: US2014281388A1] A microprocessor implemented method for maintaining a guest return address stack in an out-of-order microprocessor pipeline is disclosed. The method comprises mapping a plurality of instructions in a guest address space into a corresponding plurality of instructions in a native address space. For each function call instruction in the native address space fetched during execution, the method also comprises performing the following: (a) pushing a current entry into a guest return address stack (GRAS) responsive to a function call, wherein the GRAS is maintained at the fetch stage of the pipeline, and wherein the current entry comprises information regarding both a guest target return address and a corresponding native target return address associated with the function call; (b) popping the current entry from the GRAS in response to processing a return instruction; and (c) fetching instructions from the native target return address in the current entry after the popping from the GRAS.

IPC 8 full level

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CPC (source: EP US)

G06F 9/3017 (2013.01 - EP US); **G06F 9/3806** (2013.01 - EP US); **G06F 9/455** (2013.01 - US)

Citation (search report)

- [I] US 5870575 A 19990209 - KAHLE JAMES ALLAN [US], et al
- [A] US 2009254709 A1 20091008 - AGESEN OLE [US]
- [A] US 7644210 B1 20100105 - BANNING JOHN [US], et al
- See references of WO 2014151691A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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US 10228950 B2 20190312; US 2014281388 A1 20140918; CN 105122206 A 20151202; CN 105122206 B 20181109; CN 109358948 A 20190219; CN 109358948 B 20220325; EP 2972798 A1 20160120; EP 2972798 A4 20170419; EP 2972798 B1 20200617; KR 101761498 B1 20170725; KR 20150132431 A 20151125; TW 201506783 A 20150216; TW I522915 B 20160221; US 10810014 B2 20201020; US 2019155609 A1 20190523; WO 2014151691 A1 20140925

DOCDB simple family (application)

US 201414211655 A 20140314; CN 201480021703 A 20140313; CN 201811210995 A 20140313; EP 14770972 A 20140313; KR 20157029321 A 20140313; TW 103109877 A 20140317; US 2014026252 W 20140313; US 201916251941 A 20190118